CREDIT CARD FINANCING AND ITS IMPACT ON THE PROFITABILITY OF MALAYSIAN BANKS

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ABSTRACT

Most of the banks provide standard credit cards which enable customer use as a mode of payment. In addition there are also rewards programs which allow the credit cards holder to earn several incentives of making purchases with the credit cards such as cash back reward that give the customer the cash rewards. Credit card are important and being use as a part in financial and payment system. This study investigates the impact of conventional and Islamic credit cards on the bank profitability. The data consists of 12 conventional banks and 6 Islamic banks over the period from 2000 to 2016. Two profitability measures ROA and NIM will be regressed with bank specific variables which are credit card financing, total asset, total expenses, total income for the bank specific and also macroeconomic variables; GDP and CPI. The results of random and fixed effect models show that credit card financing is significantly affect the ROA and NIM for all banks. Meanwhile, credit cards significantly affect the ROA for conventional banks and also affect NIM for Islamic banks. The results implies that credit cards have significant contribution to the bank profitability. Credit card loan/financing is popular among the banking institutions due it nature that offer high return compare to the other type of loans. With the higher loan/financing rate, it is expected to contribute to the better return performance of banks ROA and NIM. With the positive relationship between credit card loan/financing and bank returns, the results propose that banks can rely on credit card loan/financing to increase their returns.

KEYWORDS: Bank Profitability, Conventional Bank, Credit Card, Islamic Bank Net Interest Margin (NIM), Return On Assets (ROA).

ABSTRAK

Kebanyakan bank menyediakan kad kredit standard yang membolehkan penggunaan pelanggan sebagai cara pembayaran. Di samping itu terdapat juga program ganjaran yang membolehkan pemegang kad kredit mendapat beberapa insentif untuk membuat pembelian dengan kad kredit seperti ganjaran tunai yang memberikan pelanggan ganjaran tunai. Kredit kad adalah penting dan digunakan sebagai salah satu kaedah kewangan dalam system pembayaran. Kajian ini mengkaji kesan kad kredit konvensional dan Islam ke atas keuntungan bank. Data terdiri daripada 12 bank konvensional dan 6 bank Islam untuk tempoh 2000 hingga 2016. Dua nisbah keuntungan ROA dan NIM digunakan sebagai pembolehubah bersandar dengan pemboleh ubah tertentu oleh bank dengan menggunakan pembiayaan kad kredit, jumlah aset, jumlah perbelanjaan, jumlah pendapatan untuk bank dan juga pembolehubah makroekonomi; keuntungan dalam negara kasar (KDNK) dan Indeks Hak Pengguna (IHP). Hasil model rawak dan kesan tetap menunjukkan bahawa pembiayaan kad kredit mempengaruhi ROA dan NIM untuk semua bank. Sementara itu, kad kredit memberi kesan kepada pulangan bank konvensional bagi pemboleh ubah ROA dan memberi kesan yang signifikan terhadap NIM bagi bank Islam. Ini menunjukkan bahawa kad kredit berbeza dalam mempengaruhi ROA dan NIM kepada keuntungan bank. Pinjaman / pembiayaan kad kredit adalah popular di kalangan institusi perbankan kerana sifatnya yang menawarkan pulangan yang tinggi berbanding dengan jenis pinjaman lain. Dengan kadar pinjaman / pembiayaan yang lebih tinggi, ia dijangka menyumbang kepada prestasi pulangan yang lebih baik oleh bank ROA dan NIM. Dengan hubungan positif antara pinjaman / pembiayaan kad kredit dan pulangan bank, keputusan mencadangkan bahawa bank boleh bergantung pada pinjaman / pembiayaan kad kredit untuk meningkatkan pulangan mereka.

KATA KUNCI: Islamik bank, kad kredit, keuntugan bank, keuntungan dari asset (ROA), konvensional bank, margin faedah bersih (NIM).

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LIST OF ABBREVIATIONS

BIC	Bank Islam Card
BNM	Bank Negara Malaysia
CC	Credit Cards
CCTL	Credit Cards / Total Loan
CPI	Consumer Price Index
EXP	Expenses
FEM	Fixed Effect Model
GDP	Gross Domestic Product
GMM	Generalize Method of Moment.
INC	Interest Income
LAGLAS	Log of Total Asset
MYR	Malaysian Ringgit
NIM	Net Interest Margin
NPL	Non-Performing Loan
PAT	Profit After Tax
REM	Random Effect Model
ROA	Return on Asset
ROE	Return on Equity
TA	Total Asset
TL	Total Loan
TEXTI	Total Expenses / Total Income
TLONTA	Total Loan / Total Asset
VIF	Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Introduction

Credit card is a financing facility which gives credit card holders privilege to make purchases on credit (Goyal, 2006). Credit card also can be classified as a convenience financing which needs to be paid every month according to the amount used by the customers (Cohen, 2005). Nowadays, credit cards are important and being use as a part in financial and payment system. Also, modern community are preferred dealing with cashless and using this plastic money to replace the cash money (Awanis and Chi Cui, 2014). Most of the banks provide standard credit cards which enable customer use them as a mode of payment. In addition there are also rewards programs which allow credit cards holder to earn several incentives of making purchases with the credit cards such as cash back reward that give the customers the cash rewards. The credit card limit is usually set up by the bank based on the customer income where it starts with classic, gold, and platinum cards. In Malaysian market, Bank Negara Malaysia (BNM) monitors the growth of credit card loan/financing by imposing the maximum credit limit cannot be exceed double of the customer monthly income. There are currently 3.6 million credit card holders in Malaysia with 25 credit card issuers which consist of banks and two are non-banks, the AEON credit service and synergy cards.

1.2 Problem statement

Loans have significant impacts on bank financial positions because they generate the highest income in banking institution and they became the largest asset in bank's balance sheet (Rose and Hudgins, 2013). Credit card is one type of loan offered by the banks and it is a short term financing where credit card holders need to pay their debt every month depending on the amount that had been spends. Credit cards provide cardholders a secure, reliable and convenient means of payment and credit card holders often receive incentives to use their credit cards such as dispute resolution services, frequent-use awards, and interest-free short-term loans if no balances are carried between billing periods (Chakravorti, 2003).

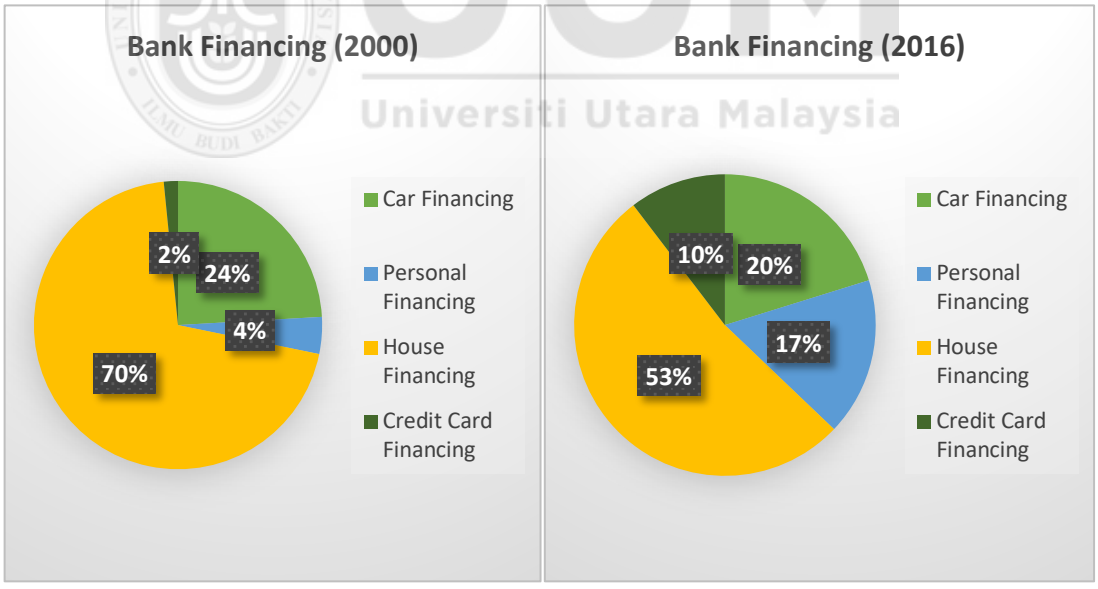


Figure 1.1
The Percentage of Financing between 2000 and 2016.
Sources: Statistic BNM.

Figure 1.1 shows the trend of bank loan/financing for the period between 2000 and 2016. It is found that house financing contribute to the larger portion (more than half)

of bank financing. This then followed by the vehicle financing, where it constitutes more than 20% of bank loan/financing portfolio. Meanwhile credit card financing shows an increased trend from 2% to 10% contribution from year 2000 to year 2016. This trend indicates the important of credit card loan/financing as a popular loan/financing facility among the customer.

Table 1.1
Interest Rates For Selected Banking Products

Product	Credit Card	Personal	House loan	Car financing
Rates	13%-18%	7%-9%	7%-9%	3%-5%

Sources: CIMB bank website.

On other hand, Table 1.1 reports on the differences in loan rates that banks charge to their customers. It is found that credit cards bear the highest loan rate (18%) compare to the other loan products and it is followed by personal loan (9%), home loan (8%) and vehicle loan (4%). The pattern is in line with the finance theory of high risk high return where it seems that banks are charging higher interest rate to products with high risk. High interest rate in credit cards loan 18% per annum would contribute to higher return for the banks. These statistics give evidence the important of credit card financing in generating more income for banks.

Eventhough banks charge higher interest rate for credit cards and this could leads to the higher income for banks, there is no empirical study so far that investigate the impact of credit card loan/financing on bank profitability. Previous research used

total loans as a proxy for credit/loan and they found significant relationship between loan and bank performances.

For instance Muiru, Oluoch and Ajang (2018) studied the effect of loans on the profitability of financial institutions in Kenya. The study found that loans have a significant relationship with the profitability of banks. For the same country, Mwangi (2013) evaluated the relationship between mortgage financing and profitability of commercial banks in Kenya and he concluded that these two variables have positive relationship. Kadioglu, Telceken and Ocal (2017) study the effect of the loan quality on the bank profitability. It is found that there is a significant, negative relationship between non-performing loans and bank profitability which is measured by return on equity and return on asset.

Taos (2000) found that bank loans contributes significantly to banks' profitability, with its disparities explained by the difference in their lending rates, lending policies and unavoidable competition that may exist between banks. Robert and Berger (1991) examined the relationship between loan and bank risk. The empirical results indicate that loans tend to contribute to the better performance of banks.

The above literatures discuss mostly on the impact of total loan on bank performance, Eventhough there are some studies look on the specific type of loan such as mortgage loans (Mwangi, 2013), but credit card loan/financing is hard to find in the literature. It is interesting to know the impact of credit card due to its contribution to

the income of banks and the significant higher interest rate that bank charge on credit card holders compare to the other type of borrowers.

The relationship between credit card and bank return performance is unique due to the significant contribution of credit card loan/financing to the bank performances. Its unique because many banks in Malaysia are increase their attraction by providing variance of benefits and type of credit cards. This means the demand for credit cards is still higher. At the same time there are not many researches that analyse the relationship between credit card loan/financing and bank performances. Previous researches usually focus on the impact of total loan and bank performance and there are limited studies on credit card loan/financing. Therefore it is timely to conduct study on credit card financing and its impact on bank return performances. This study aims to investigate the impact of the credit cards on the return of Malaysian banks. Furthermore, not all banks offer financing for credit cards because credit cards could be new and more risky compared to the other type of financing.

One of the uniqueness of Malaysian banking market is the implementation of dual banking system. Islamic banks compete in the same environment and offer same competitive banking products such in conventional banks. Islamic banks also offered Islamic credit card to their customers where the first Islamic credit card in Malaysia was introduced by AmBank in year 2002 with its *Al-Taslif* credit card. Then it was followed by Bank Islam Malaysia Bhd with its Bank Islam Card (BIC) (Shahwan, S., Mohd-Dali, N. R. S. and Salleh, S., 2008). Credit card was introduced as an alternative for muslim customer to transact with Syariah compliant credit card. These cards have same features as the normal conventional credit card and what important is the profit

rate will be charged to the Islamic credit card with the application of several Islamic financial contracts such as *Bai Inah* and *Qard Hasan* (Ferdian, Dewi and Rahman, 2008). *Bay al-inah* operates when Islamic bank sells asset to their customer with deferred payment and later buy back from the same customer with cash at lower price (Obaidullah, 2005). In addition, it is important for Islamic credit card to follow the three criteria of Islamic principle. First, the transaction must be from *Riba*, *Gharar*, and *Maysir*. Second, Islamic credit card must be accepted worldwide as a medium of payment. Lastly the Islamic credit card must not involve in haram activities which could breach the shariah requirement.

The development of economy depends on the progress of the nation in how the people manage the financing. In this modern area, most of the citizens want to achieve the maximum standard of living and comfortable. However, there are some people who failed to manage their financial planning and this could bring them in situation with a high burden of debt in order to satisfy their own personal desires and needs (Goi and Nee, 2008). Credit card also leads to the higher debt statistic among household and the percentage who had been declared bankrupt in increased every year (Zamzamin, Jaini, Zamanira and Zaib, 2015). Statistics from Malaysian Department of Insolvency show that the total of 122,169 Malaysian already being declared bankruptcy from 2007 until 2013. Malaysian are facing an outstanding debt of RM36.9 billion on credit cards and more than 800 people aged 30 above had been declared bankrupt because of credit card in year 2017. Only 43.6 percent already settled their credit card in the given period and more than half of the credit cards holders are unable to pay their debt in the given period. This leads to the higher non-performing loan (NPL) which could reduce bank returns. NPL refers to the inability of borrowers fulfill their financial obligation

towards their interest payments or paying back the principle. In practice, normally bank will put aside some amount of money in order to cover up any potential losses from loan activity which is known as loan loss provision. Therefore the customer should pay attention to avoid this problem because the main cause of this problem is due to attitude in credit card spending (Hasba, 2001).

For the same reason, BNM introduced guidelines on credit card issuance in year 2013 to encourage people to have good financial practices. The eligibility for the credit card holders has been restricted to minimum income per annum is RM24,000 and to those who have income more than RM36,000 per annum entitles for two credit cards with different issuers. With all the restrictions and regulations in controlling the issuance of credit card by the BNM, it is believed that the contribution of credit card to the better performance of banks is something that needs to be investigated.

1.3 Research Questions

The research questions of the study are:

1. What is the trend of credit card financing.in Malaysian market?
2. What is the impact of credit card financing on the bank profitability?
3. Is there any difference on impact of credit cards on loan/financing conventional bank returns and Islamic bank returns?

1.4 Research Objectives

The objectives of the study are:

1. To study the trends of credit card financing in Malaysian Banks.
2. To investigate the impact of credit card loan/financing, bank specific variables and economic variables on the bank profitability.
3. To investigate the impact of credit card loan/financing on the conventional bank and Islamic bank profitability.

1.5 Significant of Study

This study is significant for the following reasons. The finding of this study will be useful as a reference for the future studies regarding the relationship between credit card financing and bank profitability. In addition, this study is also beneficial for the banking regulator and bank management especially in constructing rules and regulation regarding credit cards market.

1.6 Organization of the Thesis

This thesis is divided into five chapters. For the first chapter it provides the background of the study, problem statement, research question, research objectives, scope and limitation and the thesis outline. Second chapter reviews the literature from the previous study and the theories that are related to this study. It follows with the

third chapter which describes on the methodology of the research that employed in this study which includes the research design, conceptual framework, hypotheses development, sampling, data collection, methods of data analysis and measurement of the variables. Fourth chapter discusses the results of this study and findings based on the research question and the research objectives. Finally the fifth chapter represents the conclusion of the study by providing the summary based on the findings, limitation, implications and recommendations for the future study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the studies which related to bank loan/financing and focus is given on credit card loan/financing. On top of that, studies on factor affecting bank profitability also will be addressed.

2.2 Measure of Bank Profitability

Previous studies used several techniques in measuring bank profitability. For instance Adebesi and Matthew (2015) use return on asset (ROA) to study the impact of non-performing loans on profitability of banks in Nigeria. This study made use of secondary data obtained from the Annual Report and Statement of Accounts of the NDIC for a period of seven (7) years (2006- 2012). The result revealed that there is no relationship between the non-performing loan (NPL) and return on assets (ROA) of Nigerian Banks. Same with Hamza (2015), who studied the impact of credit risk on commercial banks' ROA in Pakistan. The findings show that credit risk is negatively associated with bank ROA. It is also found that capital adequacy ratio (CAR), loan loss provision ratio (LLPR), liquidity ratio (LR) and non-performing loan ratio (NPLR) variables have significant impact on return on assets (ROA).

Kodithuwakku (2015) analyzed the impact of credit risk on the performance of the commercial banks in Sri Lanka. ROA is used as performance indicator and loan provision to total loan (LP/TL), loan provision to non-performing loans (LP/NPL), loan

provision to total assets (LP/TA) and non-performing loans/ total loans (NPL/TL) are used as indicators of credit risk. The results show that non-performing loans and provisions have an adverse impact with ROA. As for Ghana banking industry, Afriye and Akotey (2013) examined the impact of loan on the ROA for rural and community banks. They used data from financial statements of ten rural banks for the period of 2006 to 2010. The findings indicate a significant positive relationship between non-performing loans and ROA. Rao and Lakew (2012) investigated the determinants of profitability of commercial banks operating in Ethiopia. The results show that internal factors such as bank's capital structure, liquidity, credit risk, loan portfolio, asset quality, and expense management have significant relationship with ROA and external factors are found statistically insignificant.

Beside ROA, Al-Tamimi (2010) used return on equity (ROE) and return on deposit (ROD) to investigate some influential differences in profitability of Islamic and conventional banks in UAE during the period 1996-2008. The results show that liquidity and concentration were significant with ROA and ROE. On the other hand, cost and number of branches were the most significant determinants of Islamic banks. ROA and ROE also being used by Ahmed and Khababa (1999) in investigating the profitability determinants of banks in Saudi Arabia. The results reveal that the business risk and the bank size have significant relationship with ROA and ROE. Kim and Kim (1997) examined the structure-profit relationship of commercial banks in Korea and the U.S. Using ROA and ROE, the results show that the capitalization rate, reserves for loan losses and the size of the bank have significant impact on the ROA and ROE.

On other hands, few studies also used net interest margin (NIM) as the measurement of bank profitability. The margin between deposit interest rate and loan interest rate is unique for banks because it measures the bank returns. Saksonova (2014) claimed that NIM is the most appropriate criterion for evaluating the effectiveness and stability of banks' operations.

Wasiuzzaman and Tarmizi (2010) examined the impact of bank characteristic and also the macroeconomic determinants on the profitability of Islamic banks in Malaysia. ROA and NIM are used to measure bank profitability and the results indicated that capital, liquidity, operational efficiency, asset quality, inflation and GDP affect ROA and NIM of Islamic banks in Malaysia. Flamini, McDonald and Schumacher (2009) examined the commercial bank profitability in Sub-Saharan Africa. The study used a sample of 398 banks in 41 SSA countries over the period 1998-2006. The results show that moderate persistence in profitability of ROA and NIM as the dependent variables.

2.3 Literature Review on Credit Cards

The studies on credit card previously focus on the usage of credit card, factors affecting the selection of credit card and credit card spending habits. The research on the impact of credit card loan/financing on bank performance is scarce and limited. For instance Alam, Rahim, Haq and Khan (2014) identify several factors that affecting the credit card usage among Malaysian youth. The results show that knowledge, aggressive promotion, and low minimum payment requirement are significant in influencing

credit card usage. This is consistent with Tamara and Silva (2003) where they found that the significant influence of low minimum payment on the usage of credit cards. In the same line of study Nga, Yong and Sellappan (2011) also focus the credit card usage among youth but their focus is on the gaps between consumer behavior, image consciousness, materialism and consumer spending. The results show compulsive spending behavior among youth and therefore knowledge is important and they need to be educated on spending habit.

Zamzamin *et al.* (2015) conducted a study on the impact of credit card usage among Malaysian youth and they found that attitude, spending and lifestyle are significantly influence credit card usage. Ramayah, Nasser, Nasurdin and Choo (2002) investigate relationship between the attitude of the credit card user and their usage level either they are active or passive users. The results show that the active credit card holders are more exposed to the long term interest period compare to the passive users.

Ming-Yen Teoh, Chong and Mid Yong (2013) investigated the impact of several variables on spending behavior of the credit card holders. The results show that age, income, and marital status affect credit card spending. Amirah and Kahf (2016) discuss the issue on credit cards in the perspective Shariah. There are several issues on Islamic credit card such as the structure of credit card which is based on debt and debt is not encouraged by Islam except for those in need. In addition there are three conditions need to be addressed in the Islamic credit card, first the underlying structure should be based on the sales or leasing which no profit charged for the paid amount. Second, there shouldn't be charged for the fee on any transaction that could be interest. Lastly, control the credit limit that required by the Shariah compliant purpose.

Nuradli Ridzwan, Shumaila and Hamid (2015) studied on the credit card preference on Islamic and conventional. The main purposed of their study is to know the consumer behavior in selecting banking product. They use the descriptive analysis between three type of group, the Islamic credit card user, conventional credit card user and both conventional and Islamic credit card user. The results show that the demographic and psychographic are different for the three groups. In addition, insurance or t*akaful* factor, cost, reward points and convenience factors significantly influence credit card usage.

Loke (2007) examined the determinants of merchant participation in credit card payment schemes. The variables are divided into three categories which is background, merchant's business, and influence by other players on the merchant's decision. It is found that a merchant's personal background, type of business and total value of sales are significant in determining a merchant's acceptance of cards in payment transactions. Results indicated that customers' usage of credit cards and other merchants' acceptance of credit cards in payments have a significant influence on a merchant's decision. It also indicates that non-pecuniary strategic factors are stronger drivers and barriers to a merchant's participation in credit cards payments services compared to monetary related factors.

Awanis and Chi Cui (2014) examined the present a new concept and measure of susceptibility to the credit card misuse and indebtedness (SCCMI). The study focussed on young credit card users (aged 18-25) from Malaysia, Singapore, and the UK as they represent varying levels of credit card issuance and consumer protection

regulations. Results show that the SCCMI scale is valid, reliable and parsimonious across the multi-country context. The paper provided additional validity support through known-group comparison among various payers of credit card bills.

Robert and Jones (2001) examined the money attitudes, credit card use, and compulsive buying among American college students. Involved 13,00 students in Texas as convenience sample in 1998 using questionnaire. Findings suggest that the money attitude power prestige, distrust and anxiety are closely related to compulsive buying and that credit card use often moderate into the relationships.

2.4 Literature on Determinants of Bank Profitability

Athanasoglou, Brissimis and Delis (2005), examined the effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability. Data was collected within period 1985-2001. The bank specific variables are capital, credit risk, productivity, expenses management and size of the bank. Industry-specific profitability determinants variables are ownership and concentration. Meanwhile the macroeconomic variables are inflation and cyclical output. Results show that capital is important in explaining bank profitability and that increased exposure to credit risk lowers profits. Labor productivity growth has a positive and significant impact on profitability, while operating expenses are negatively and strongly linked to it. Size does not provide evidence of economies of scale in bank profitability.

Rao and Lakew (2012) studied on determinants of profitability of commercial banks operating in Ethiopia using unbalanced panel data set of banks over the period

1999-2009. The results indicate that capital adequacy (equity to asset ratio), diversification (non-interest income to total income) and bank size (log of total assets) are among the internal factors that have positive and significant impact on the profitability of Ethiopian commercial banks. Liquidity and operational efficiency also found to have negative affect to the profitability of the banks.

Sufian and Habibullah (2009) examined the determinants of commercial bank profitability in Bangladesh using the data of 37 banks over the period 1997-2004. The results indicate that loans intensity, credit risk and cost are the bank specific factors that have positive and significant impact on the profitability of Bangladeshi commercial banks.

Kosmidou (2008) examined the determinants of performance of Greek banks during the period of EU financial integration (1990- 2002). Used an unbalanced pooled time series dataset of 23 banks, results indicated that high return on average assets (ROAA) was found to be associated with well-capitalized banks and lower cost to income ratios. The gross domestic product (GDP) has a significant and positive impact on ROAA, while inflation has a significant negative impact.

Another empirical studied by Said and Tumin (2011) on performance and financial ratios of commercial bank in Malaysia and China examined the impact of bank specific factors such as liquidity, credit, capital, operating expenses and size of commercial bank on their performance. The results show that different ratios have different impact on the performance for the commercial bank for both countries.

Capital ratio and operating ratio do influence performance of banks and credit ratio and operating ratio have negative correlation with bank performance in Malaysia.

Guru, Staunton and Balashanmugam (1999) examined factors that influence bank deposits by taking a sample of seventeen Malaysian commercial banks for the period 1986 to 1995. The study show that efficient expense management and inflation are found to be the significant factors affecting bank profitability in Malaysian.

Badola and Verma (2006) examined the major determinants of profitability of public sector banks in India using data over the time period 1991-2003. The study found high degree of association between profitability and the independent variables and the study reported that the variables such as non-interest income, operating expenses, provision and contingencies and spread have significant relationship with bank performances.

Staikuras, Mamatzakis and Koutsomanoli-Fillipaki, (2007) examined the operating performance of the South Eastern European (SEE) and relationship between operating expenses and bank, market and country specific characteristics in banking industry over the period 1998-2003. Results show that operating performance was found to be positively related to loan quality and the asset size or the bank's market share and negatively related to liquidity, the loan ratio and bank's age.

Hassan and Bashir (2003) examined the probability of Islamic bank for 21 countries between 1994 and 2001. Four measures of performance are used in this study which is the net non-interest margin (NIM), profit margin (BTP/TA), returns on assets

(ROA), and returns on equity (ROE). The set of ratios used comprises fund source management (CSTFTA), funds use management (OVRHD/TA and NIEATA), leverage and liquidity ratios (EQTA and LOANTA). Three indicators are used as proxies for macroeconomic are GDP per capita, GDPPC, the real interest rate (RI) and real interest rate*GDPPC. The results indicate that high capital and loan-to-asset ratios lead to higher profitability and Islamic capital has significant impact on banks profitability and it revealed that larger equity to total asset ratio leads to more profit margins.

Jabir and Terye (2016) investigated factors that affect credit risk of Ethiopian commercial banks. It covers a time period from 2003 to 2009. Bank specific variables involved is Leverage, Operating Inefficiency, Loan Growth, Loan to Deposit Ratio, Capital, Net Interest Margin and Bank Size and Macroeconomic variables is aggregate economic activity, inflation and market interest rate.

Gul, Irsyad and Zaman (2011) examined the relationship between bank-specific and macro-economic characteristics on bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. This paper uses return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) to measure profitability. The results show that macroeconomic factors and external factors of the banks have significant impact on profitability.

Alshatti (2015) examined the effect of credit risk on financial performance of the Jordanian commercial banks during the period 2005-2013 using capital adequacy ratio, credit interest/credit facilities ratio, provision for facilities loss/ net facilities

ratio, leverage ratio and non-performing loans/gross loans ratio as independent variables. The results revealed that credit risks have significant effect on the financial performance of the Jordanian commercial banks.

Dietrich and Wanzenried (2011) identified factors that influence the profitability of commercial banks in Swaziland for the period 1999 to 2006. They used ROAE and ROAA as dependent variables and considered eleven bank specific factors and five macroeconomic factors as explanatory variables in their analysis. The study found positive and significant relationship equity and GDP with bank profitability. Bank size and expenses were found to be negatively correlated with bank profitability.

Flamini et al. (2009) used a sample of 389 banks in 41 SSA countries to examine the determinants of bank profitability and explore the relationship between profits and equity in the region. A number of bank specific and macroeconomic variables including credit risk, activity mix, capital, bank size, market power, GDP growth and inflation as factors to influence bank profitability in the region. They found that higher ROA were associated with large bank size, activity diversification and private ownership.

Molyneux and Seth (1998) examined the performance of foreign banks in the United States and found that the risk adjusted capital ratio to be a key determinant of bank performance. Williams (2003) studied the determinants of foreign bank performances in Australia for the period 1989-93. With ROA as the dependent variable, the result revealed that foreign banks have a significantly lower market share.

GDP, NIM and non-interest income have positive and significant impacts on bank performances.

Kanwal and Nadeem (2013) investigated the impact of macroeconomic variables on profitability of public limited commercial banks in Pakistan for the period of 2001- 2011. POLS method was used and the result found positive relationship of real interest rate with ROA, ROE and EM. Meanwhile GDP was found to have insignificant effect and inflation rate on the other hand has a significant negative effect with bank performances.

Kosmidou (2008) examined the factors that affect the performance of Greece Banks for the period 1990-2002 using unbalanced time series data of 23 banks. A number of internal and external factors were considered in the study and were regressed against the banks' ROAA. The study found that ROAA was positively correlated with high capital and lower cost to income ratio as well as with size and the growth of GDP. Moreover it was found that inflation had significant negative effect on bank performance.

Sufian and Chong (2008) examined the key factors that influence the profitability of banks in Philippines during the period 1990-2005. The findings reveal that bank size, credit risk, inflation, and expense preference behaviour have negative impact on bank profitability in Philippines whereas diversification and capitalization have positive impact. However, economic growth, money supply, and stock market capitalization are found to have no significant impact on the profitability of banks in Philippines.

Abduh and Alias (2014) investigated the factors that determine the Islamic banking performance during the period of 2006-2010. The dependent variables are ROA and ROE, independent variables are loan loss provision to total assets net loans to total assets, total overhead to total assets, shareholder equity ratio, bank size, GDP and inflation. Results show that loan loss provision to total assets, total overhead cost to total assets and inflation are the significant variables affecting the performance of Malaysia Islamic banks.

Pasiouras and Kosmidou (2007) examined factors that influence the profitability of commercial domestic and foreign banks in the 15 European Union countries using bank data over the period 1995-2001. In their analysis they measured bank profitability by ROAA and considered a number of internal and external factors. The results reveal that inflation and GDP are positively related with the profitability of domestic banks but they are negatively related to foreign banks.

Mwangi (2013) evaluated the relationship between mortgage financing and profitability of commercial banks in Kenya. The data was from 43 Kenyan commercial banks with a sample of 30 that were offering mortgage financing between 2008 and 2012. The study concluded that mortgage financing was a profitable venture for commercial banks in Kenya. It further revealed that banks deposit, liquidity, size of bank and capital reserves were positively related to their profitability.

Kioko (2014) evaluated the effect of mortgage financing on performance of the real estate market in Kenya. The target population constituted 19,177 outstanding

mortgage loans with a study sample of 392 respondents. Both primary and secondary data collection methods were used and multiple regression models were used to analyze the data. The study concluded that mortgage financing is important to enable potential homeowners acquire real estate at affordable rates.

Muiro, Oluoch and Ajang (2018) examined the effect of loan portfolio management on the profitability of banks Kenya. The results reveal that loan portfolio management has a significant effect on the bank profitability. Kadubo and Musyoki (2012) studied on the impact of loans on the performance of banks in Kenya. The results show that loan is an important predictor of bank financial performance thus success of bank performance depends on loan management.

Rahman (2010) analysed the impact of financing structure on Islamic banks' insolvency risk exposure. The results indicate that loan loss provision to total asset (PLL) has positive relationship with Islamic bank insolvency risk exposure and ratio of total equity to total asset (TE) has negative correlation. Meanwhile, for macroeconomic variables only gross domestic product (GDP), Kuala Lumpur interbank overnight rate (OVR) and Kuala Lumpur Composite index (KLCI) show positive relationship with Islamic bank insolvency risk exposure.

Isa, Hydzulkifli and Ahmad (2014) examined the impact of *Bai Bithaman Ajil* (BBA) financing on the Islamic bank performances. The data consist of 12 Islamic banks in Malaysia in the period 2000-2013. The study used financing income and profit after tax as proxies for dependent variables and another 6 independent variables. The results indicate that BBA financing did not have any influence on bank performance.

Isa and Hussin (2016) analyzed the impact of BNM guidelines on household loans on Malaysian bank performance. The study involved 24 banks for the period of 2001-2015. The results reveal that household loan have positive and significant influence on the profitability of all banks and Islamic banks before the introduction of BNM guidelines. The results also significant for all banks but not for the commercial banks and Islamic banks for the post period (after the introduction of the guidelines).

2.5 Chapter Summary

This chapter reviews the literature on bank profitability and the relationship between credit card loan/financing on bank profitability. The conclusion of the review are as follows:

- There are several bank specific variables such as assets, capital, expenses and loans that have significant impact on bank performances. In addition macroeconomic variables such as GDP and inflation also give significant impacts to the bank performances.
- The studies on credit cards mostly focusing on the factors that influencing the usage of credit cards. Eventhough, some bank performance studies use total loan as their independent variables, the studies that focus on the impact of credit card on bank profitability are very limited.

CHAPTER 3

DATA AND METHODOLOGY

3.1 Introduction and Data Sample

This study uses unbalanced panel data and the data was collected from the annual reports of commercial banks and Islamic banks in Malaysia. It focuses on 12 commercial banks and 6 Islamic banks for the period of 2000-2016 and the sample was selected from the list of banks that offer credit card as their banking products. The list of sample banks is shown in Table 3.1.

Table 3.1
List of Sample Banks.

	Name of Bank	**Type**	**Years**
1	Affin Bank	Commercial	2005-2016
2	Alliance Bank	Commercial	2006-2016
3	CIMB Bank	Commercial	2005-2016
4	CITIBANK	Commercial	2007-2016
5	Hong Leong Bank	Commercial	2007-2016
6	HSBC Bank	Commercial	2010-2016
7	Maybank	Commercial	2006-2016
8	OCBC Bank	Commercial	2002-2016
9	Public Bank	Commercial	2005-2016
10	RHB Bank	Commercial	2005-2016

11	Standard Chartered Bank	Commercial	2000-2016
12	UOB Bank	Commercial	1999-2016
13	Bank Islam Malaysia Berhad	Islamic	2005-2016
14	Bank Rakyat	Islamic	2007-2016
15	HSBC Islamic	Islamic	2010-2016
16	Maybank Islamic	Islamic	2006-2016
17	Public Bank Islamic	Islamic	2005-2016
18	RHB Islamic	Islamic	2005-2016

3.2 Theoretical Framework

The purpose of this study is to investigate the impact of return or profit from the credit card on the profitability performances of the commercial bank and Islamic bank in Malaysia. This study employs the quantitative research methodology and panel data regression. According to Creswell (2009), quantitative research is useful in testing the theories by scrutinizing the relationship between the variables. Panel data offers more informative data, less linearity among the variables and more degree of freedom. In addition, it also can minimize the bias on the results if the information of individuals and firms are aggregated into wide aggregates.

The framework of this study is shown in Figure 3.1 and Figure 3.2.

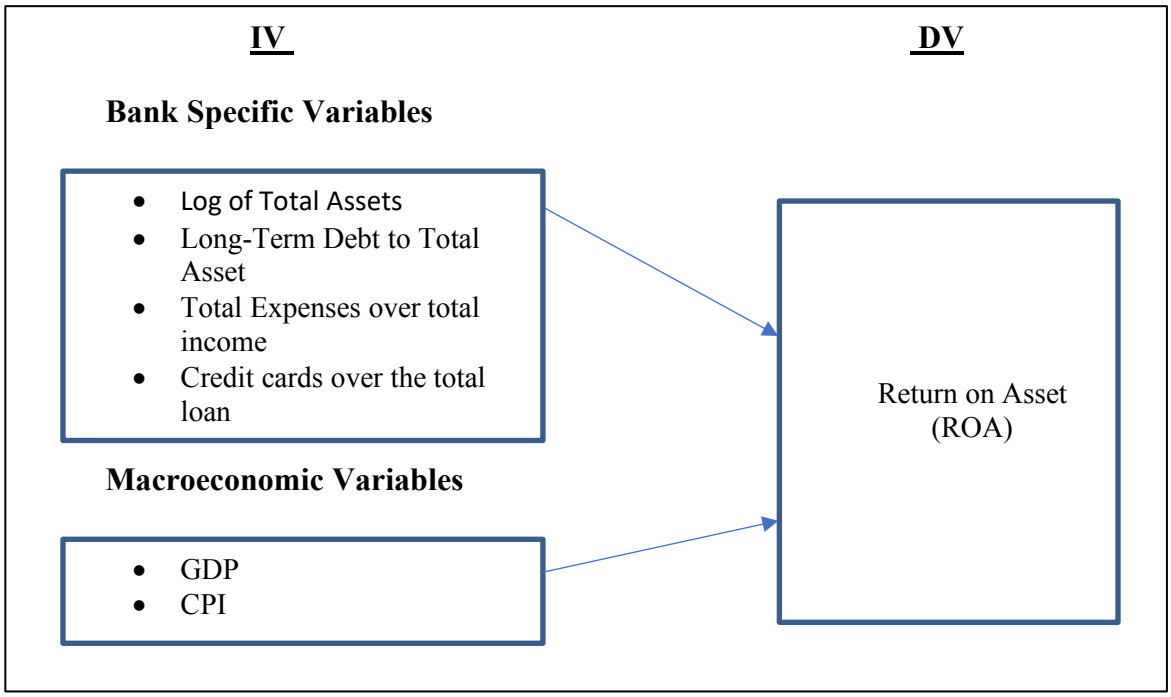


Figure 3.1
Theoretical Framework for ROA model

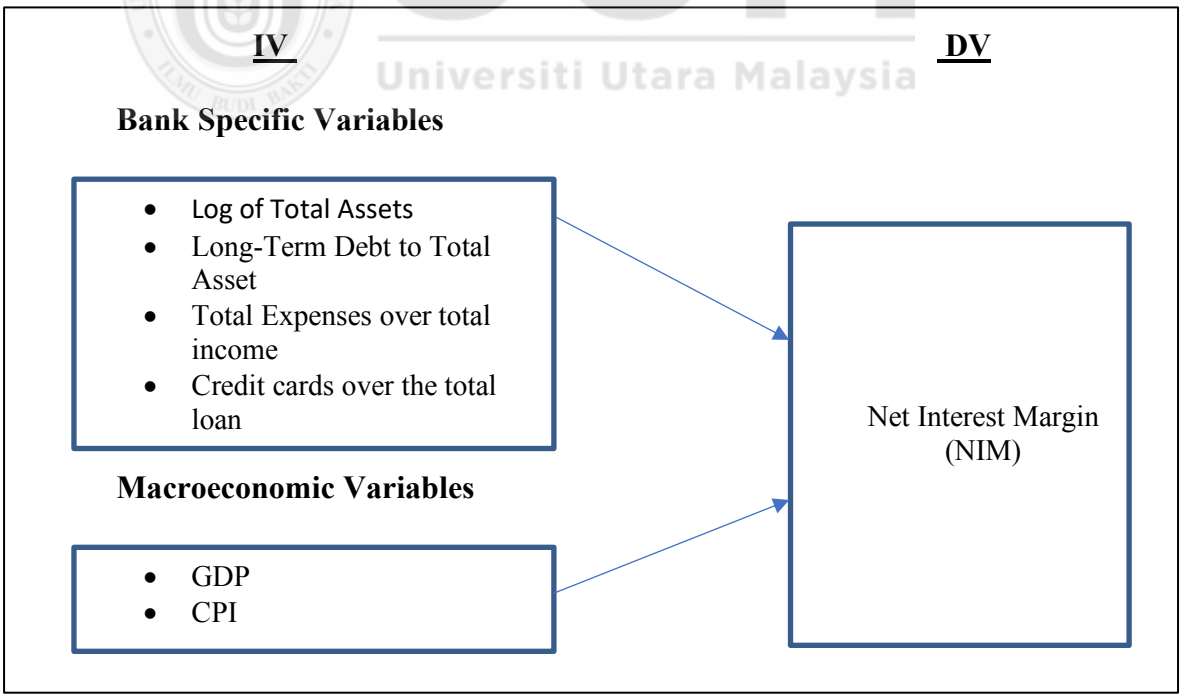


Figure 3.2

Theoretical Framework for NIM model

Figure 3.1 shows the theoretical framework of the study where it consists of ROA and NIM as proxies of bank profitability and independent variables such as Total Assets, Total Loans, Total Expenses, Credit Cards financing and two macroeconomic variables; Gross Domestic Product, and Consumer Price Index.

- Total assets is an amount of total assets as reported in banks' financial statements
- Total loan is the amount of the loan offer by the bank to the customer. For Islamic banks, they give financing to customer rather than loans due to the prohibition of interest in the banking operation.
- Expenses are the salaries, rent, marketing cost and other administrative expenses. The cost of services and goods used in the process of earning revenue.
- Credit cards financing are the financing offer by the bank in the form of credit cards.

Macroeconomic variables refer to the external factor variable and this study use Gross Domestic Product (GDP) and Consumer Price Index (CPI) as proxies of macroeconomic variables.

- GDP measures the economic development of a country and it is calculated based on the total market value of goods and services produced in a country at a specific time.
- CPI is the method used to measure or determine the inflation rate. The CPI measures the average price of goods and services normally used by households at the designated time.

3.3 Model Specification

Based on the literature and theoretical framework, this study adapt the model had been developed based on the previous literature. Two models were used in this study to find the relationship between credit card financing and other control variables on bank profitability

$$NIMit / ROAit = \alpha 0 + \beta 1LAGLAS_{it} + \beta 2TLTA_{it} + \beta 3TETI_{it} + \beta 4CCTL_{it} + \beta 5GDP_{it} + \beta 6CPI_{it} + \varepsilon_{it}$$

α = constant

i = *bank*

t = *time period*

ε_{it} = Error term of bank *i* on time *t*

ROA = Return On Assets

NIM = Net Interest Margin

LAGLAS= Log of Total Asset

TLTA = Total Loan/Total Assets

TETI = Total Expenses/Total Income

CCTL = Credit Cards/Total Loan

GDP= Gross Domestic Product

CPI= Consumer Price Index

The use of panel data has several advantages compare to other traditional models. According to Gujerati (2003) and Greene (2003), there are two panel data models which are fixed effect model (FEM) and random effect model (REM).

3.3.1 Fixed Effect Model

The cross-sectional unit for the individuality that assumes the constant of across the firms through slope coefficients. The general regression for the fixed effect model is:

The general regression:

$$Yit = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it}$$

Where;

i= *i*th cross-sectional unit

t= *t*th time period

and fixed effect model:

$$Y_{it} = \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it}$$

Where;

i= intercept term

It suggests of the individual firms could be different on *i* due to the special features such as policies and strategies for the firm.

3.3.2 Random Effect Model

This model is different from the fixed effects model. Furthermore, random more on the variable with mean β_1 without (i) compared to fixed which is $\beta_{1i.}$

Fixed effect model estimation

$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it} + \varepsilon_i$

Where;

$w_{it} = \varepsilon_i + u_{it}$

ε_i = cross section or individual specific error component

u_{it} = combination of the time series and cross-section error component.

3.4 Measurement of Variables

3.4.1 Dependent variable

3.4.1.1 Return on Asset (ROA)

According to Rao and Lakew (2012), Al-Tamimi (2010) and Sufian (2009), ROA is a well-known ratio in measuring bank performance and the formula for ROA is by dividing banks' after-tax profit over the totals assets. It measures how effective banks in managing their assets in generating income (Kiganda, 2014). Banks with high ROA are capable to produce high return because of the ability of the banks in utilizing their assets based on the after-tax return (Heikal, Khaddafi, Ummah, 2014).

3.4.1.2 Net Interest Margin

NIM is calculated by deducting interest earned from the loan and interest paid to the depositors. The bigger the margin, the higher the returns that bank can generate in their operation. It has been used by many researchers such as Saksonova, 2014 and Naceur and Goaied, 2008 in measuring bank return performances

3.4.2 Independent variables.

3.4.2.1 Log of Total asset

The usage of the natural log of the total asset as a proxyfor bank size to measure bank performances has been widely use in the literature. Rao and Lakew (2012), Sufian and Habibullah (2009) and Kosmidou (2008) for instance found positive relationship between total asset and bank return performances. The above explanation suggests the following hypothesis:

H1: There is a positive relationship between total assets and ROA/NIM.

3.4.2.2 Total Loan over Total Asset

This ratio is also known as leverage ratio which is used as investment strategy because high leverage ratio means the firms are highly dependent on debt. Generally, this ratio is high for banking institutions compare to other business entities. This is due to the high contribution of deposits from customer as bank source of funds. The use of total loan in measuring bank return performances has been used by Gul et al. (2011) and they found positive and significant relationship between loan and bank profitability. Hassan and Bashir (2003) found that loan-to-asset ratios lead to higher profitability and

Islamic capital has significant impact on banks profitability The above explanation suggests the following hypothesis:

H2: There is a positive relationship between total loan and ROA/NIM.

3.4.2.3 Total expenses over total income

Expenses refer to the money paid for salaries, rent, marketing cost and other administrative matters. The ratio of total expense over total income is used to identify the percentage of expenses that had been used from the total overall income. Previous studies use this ratio as a proxy in measuring bank efficiency. Studies by Lepetit *et al.* (2008), and Staikuras *et al.* (2007), found significant impact of expense on the bank profitability. Badola and Verma (2006) , operating expenses have significant relationship with net profits. The above explanation suggests the following hypothesis:

H3: There is a positive relationship between total expenses and ROA/NIM.

3.4.2.4 Credit card loan/financing over the total loan

Credit card loan/financing is the main focus of this study and it is expected that the higher this ratio the higher could be the bank returns. The purpose of banks give financing to the customer is to obtain the return in a period of time. Same goes to credit card where loan is given to customers with expectation of returns when they payment is due. Isa, Hydzulkifli, Ahmad (2014) indicated that total financing, total assets, and BLR have positive relationship to Profit after tax and total financing, expenses, BLR and CPI positive relationship to Bank profitability. The above explanation suggests the following hypothesis:

H4: There is a positive significant relationship between a credit card and ROA/NIM.

3.4.2.5 Gross Domestic Product

GDP is a quantitative measurement for the development of a country based on it economic activity. It also part of the monetary value of the good and services that had been produced by the certain countries and is an indicator for the country to represent the health of the country's economy. Many studies use GDP as indicator for macroeconomic variable in measuring bank performances such as Kanwal and Nadeem (2013), Tesfaye (2012) Dietrich and Wanzenried (2011) and they found positive relationship between the GDP and bank profitability. The above explanation suggests the following hypothesis:

H5: There is a positive relationship between GDP and ROA/NIM

3.4.2.6 Consumer Price Index

CPI is another macroeconomic variable which represents the price index that was paid by the customers. It has been used to measure the customer price inflation for the goods and services in a country. Kosmidou (2008) found that there is a negative impact between inflation and bank profitability. Abduh and Alias (2014) show that inflation are the significant variables affecting the performance of Malaysia Islamic banking. Sufian and Chong (2008) found that inflation have negative impact on bank profitability. The above explanation suggests the following hypothesis:

H6: There is a positive/negative relationship between consumer price index and ROA/NIM

The following table summarizes the dependent and independent variables used in this study.

Table 3.2
List of Variables

Variable	**Measurement**	**Notation**	**Sources**	**Expected Sign**
Dependent variable				
Return on Asset (ROA)	Net Income / Total Asset	ROA	Rao and Lakew (2012), Al-Tamimi (2010), Sufian and Habibullah (2009), Heikal, Khaddafi, Ummah, (2014).	N/A
Net Interest Margin (NIM)	(Interest income – paid interest) / bank's average loans	NIM	Rao and Lakew (2012), Al-Tamimi (2010), Naceur and Goaied, 2008), (Saksonova, 2014).	N/A
Independent variable				
Total asest	Lag of total asset	LAGLAS	Athanasoglou *et la.,* (2008), Lakew (2012), Sufian and Habibullah (2009) and Kosmidou (2008).	+
leverage	Total loan / total asset	TLTA	Hassan and Bashir (2003), Jabir and Terye (2016), Gul et al. (2011).	+

expenses	Total expanses / total income	TEXPTI	Said and Tumin (2011), Badola and Verma (2006), and Guru, Staunton, and Balashanmugam (1999).	+
Credit Cards	Credit cards / total loan	CCTL	Al-Qudah (2012), Kibe (2013).	+
Gross demotic product	Percentage of growth in gross domestic product	GDP	Tesfaye (2012), Flamini, McDonald, and Schumacher (2009) Kanwal and Nadeem (2013)	-
Consumer price index	Annual CPI	CPI	Kosmidou (2008), Sufian and Chong (2008), Abduh and Alias (2014), and Pasiouras and Kosmidou (2007)	+/-

3.5 Econometric Test

3.5.1 Coefficient of correlation

Pearson's correlation is used to determine the relationship between independent variables (Davis *et al.*, 2014). As mention by Hair *et al.,* (2014) correlation coefficient illustrates the strength of relationship between two variables either positive or negative and the value is between -1 or 1. According to the Cohen (1988), there is three stages in measuring the correlation value.

- R= 0.10 - 0.29 (low correlation)
- R= 0.30 – 0.49 (medium correlation)
- R= 0.50 – 0.99 (strong correlation)

3.5.2 Variance Inflation Factor (VIF)

VIF is used to test for the multicollinearity problem in the regression model where it examines the value of variance from the regression of the coefficient. VIF value should be less than 10 and this indicates that the model is free from multicollinearity problem (Montgomery, 2001).

3.5.3 Heteroscedasticity Test

The problem of heteroscedasticity exists when the variance is not equal or constant Wiggins and Poi (2013). The test of Breusch-Pagan-Godfrey is used to detect the presence of heteroscedasticity problem in the model. The significant results will reject the H null and indicates the existence of heteroscedasticity in the models.

3.5.4 Autocorrelation

Lagrange Multiplier test is used to identify the existence of autocorrelation problem. If the test is significant we reject the null hypothesis where indicates the presence of autocorrelation. (Gujerati, 2003).

3.5.5 Hausman test

Hausman test is a test to determine between two panel models; REM and FEM which one is better in explaining the regression models where the null hypothesis is REM is better from the FEM.

3.6 Summary of Chapter

This chapter summarizes the research framework, data collection, the method used and also the hypothesis. Data of the study consists of 12 conventional banks and 6 Islamic banks for the period between 2000-2016. This study investigates the impact of independent variables total asset, total loan, total expenses, credit card financing, GDP and CPI on the dependent variables of ROA and NIM.

CHAPTER 4

FINDING AND ANALYSIS

4.1 Introduction

This chapter discusses the findings based on the 10 years unbalanced panel data of 12 conventional banks and six Islamic banks in Malaysia. The focus of the study is to analyse the impact of credit card financing on Malaysian bank return performances. In addition, the study also analyse the relationship between a set of independent variable which are total assets (TA), total loan (TL), expenses (EXP), profit after tax (PAT), interest income (INC), gross domestic product (GDP), and consumer price index (CPI) on return on asset (ROA) and net interest margin (NIM) as proxies for bank returns.

4.2 Descriptive Statistic

Table 4.0 presents the summary of the analysis of descriptive statistic for the variables of this study.

Table 4.0
Descriptive statistics of dependent and independent variables

VARIABLES	OBS	MEAN	STD. DEV.	MIN	MAX
ROA	211	0.0106	0.0112	-0.0896	0.1113
NIM	200	3.8213	1.9719	-10.4328	11.3296
LAGLAS	211	84.5 billion	92.1 billion	6.7 billion	49.6 billion
TLOANTA	211	55.8 billion	6.3 billion	3 billion	32.4 billion
TEXPTI	211	1.09 billion	1.06 billion	1.19 million	5.6 billion
CCTL	211	1.5 million	1.7 million	530 million	6.8 million
GDP	211	92.2 million	1.1 billion	-130 million	6.4 billion
CPI	211	2.5 billion	2.4 billion	131 million	11.6 billion

LAGLAS	211	5.20	1.44	0.50	8.90
TLOANTA	211	2.44	1.16	0.58	5.44

Source: Financial statement of sampled conventional banks and Islamic banks

ROA: Return On Asset, NIM: Net Interest Margin, TA: Total Asset, TL: Total Loan, EXP: Total Expenses, CC: Credit Cards, PAT: Profit After Tax, INC:Loan/Financing Income, GDP: Gross Domestic Product, CPI: Consumer Price Index

The mean return on asset (ROA) for all sample banks is 0.01056 for the study period of 2005-2016 which indicates that they generate 1.056% return from assets invested in the banking business. It is also found that the highest ROA is 0.1113 which is reported for Bank RHB in year 2012 while the lowest ROA is -0.0896 for BIMB in year 2006. As for net interest margin (NIM), the mean value for the NIM is 3.8213 and it indicates on average all sample banks generate 3.8% margin for their loans and deposits. The minimum value of NIM is -10.4327 which was reported in year 2006 for BIMB and the highest NIM was also reported for BIMB in year 2010.

The statistics also show the mean total asset for all sample banks was RM84 million where the largest total asset was recorded by Maybank in year 2015 with RM49.6 billion asset sizes. Meanwhile the smallest bank in term of asset was HSBC Amanah in year 2011 with a total asset of MYR 6.7 billion. It is also reported that all sample banks have mean RM 5.5 billion loan/financing for the study period. The maximum total loan was recorded for CIMB bank in 2016 with value of RM 32.4 billion and the minimum financing was for RHB Islamic bank with value of MYR 3.5 million in year 2005. As for total expenses, the mean for total expenses was MYR 1.09 billion for all banks and the maximum expenses was recorded in year 2015 for

Maybank with the value of MYR 5.6 billion. While the lowest total expenses was reported in 2014 for HSBC Islamic bank with value of MYR 1.19 million.

With mean of loan/financing MYR 1.5 billion credit cards remain the important type of loan/financing for all sample banks. This was contributed by the higher credit card loan/financing by CIMB bank in 2016 with the amount of MYR 6.8 billion. Profit after tax (PAT) which represents bank's profit recorded mean value of MYR 92.2 million for all sample banks. This was contributed by the higher PAT of Maybank in year 2016 with the value of MYR 6.4 billion. The lowest PAT on other side is reported in year 2006 by BIMB with MYR -130 million and this was due to the problem in the financing which reflected the profit after tax. The average interest/profit income for the study period was MYR 2.5 billion. The minimum profit income was recorded in year 2008 by Public Islamic bank with value of MYR 131 million. The maximum amount was recorded in 2016 also for Public Islamic bank with profit income of MYR 11.6 billion.

As for the macroeconomic data, the mean value of GDP for the period of 2000-2016 was 5.20%. and the maximum GDP was 8.9% in years 2001. The standard deviation for GDP was at 1.44% which respectively lower than the mean. The mean for CPI was 2.44% for the same period where the maximum CPI was 5.44% in years 2008 and the minimum CPI was 0.58% in 2008.

4.3 Econometric Tests

4.3.1 Correlation

Coefficient of correlation provides the direction and the magnitude of the relationship between the two variables. Table 4.1 reports on the correlation results of the independent variables used in the study.

Table 4.1
Coefficient of correlation for ROA

	Laglas	Tloanta	Texpti	Cctl	GDP	CPI
Laglas	1.0000					
Tloanta	-0.1373	1.0000				
Texpti	-0.2552	-0.1289	1.0000			
Cctl	0.0394	-0.1664	0.0721	1.0000		
GDP	-0.0768	0.0316	-0.0728	-0.0077	1.0000	
CPI	0.0186	-0.0382	0.1367	-0.0340	0.2042	1.0000

The aim for the correlation test is to estimate the collinearity among the independent variables. According to Mela and Kopalle, (2002) the variance and R-square are important to find the estimates of parameter and magnitudes. While Green, A. A., Berman, M., Switzer, P. and Craig, M. D. (1988) stated the effect on collinearity of the bivariate correlation is obvious for correlation that higher than 0.7 and it indicates that there is presence of multicollinearity between the independent variables. The results in

Table 4.1 reveal that the highest correlations were between laglas and texpti with the correlation of -0.2552 and between GDP and CPI with the correlation of 0.2042. Based on these coefficients, it can be concluded that there is no multicollinearity problem among independent variables used in this study.

4.3.2 Variance Inflation Factor (VIF)

VIF is a well-known tool in measuring the collinearity problem because it gives clear explanation on the effect of collinearity (O'Brien, 2007). It measures the amount of variance of an estimated regression that increase by cause of the multicollinearity and it is detected when the VUF value is larger than 10 (Montgomery, 2001)

Table 4.2
Variance Inflation Factor Analysis.

VARIABLES	VIF	1/VIF
TEXPTI	1.14	0.876335
LAGLAS	1.12	0.893579
TLOANTA	1.08	0.925787
CCTL	1.04	0.964942
GDP	1.07	0.931378
CPI	1.07	0.937383
MEAN VIF	1.09	

From the VIF results, a researcher can identify the variables that contribute to the higher VIF value which indicate the presence of multicollinearity and only variables with lower VIF values will be incorporated in the thesis model. Based on the result in Table 4.2, it is found that all independent variables are free from multicollinearity problem due to the lower VIF values (lower than 10)

4.3.3 Hausman Test

The use of Hausman test is to choose the suitable effect model between two models; Random Effect Model (REM) and Fixed Effect Model (FEM). The test is useful for the panel data in choosing the best model where the null hypothesis for the test is the preferred model is the REM. The detail results of hausman test are reported in table 4.3 and 4.4.

4.3.4 Test for Heteroscedasticity

Wiggins and Poi (2013) propose the Likelihood-Ratio test in estimating the heteroscedasticity problem and it refers to the circumstances which is the variables of the variability are unequal that had been predicts. The detail results of test for heteroscedasticity are reported in table 4.3 and 4.4.

4.3.5 Test for Auto-Correlation

Brook (2008) recommends that the existence of autocorrelation by checking the uncorrelated error terms with one another by using the Wooldridge test. The detail results of test for Auto-Correlation are reported in table 4.3 and 4.4.

4.3.6 Trends of Credit Card Loan/Financing in Malaysia

This section highlights the trends of credit card loan/financing in Malaysia and this will answer objective one of the study.

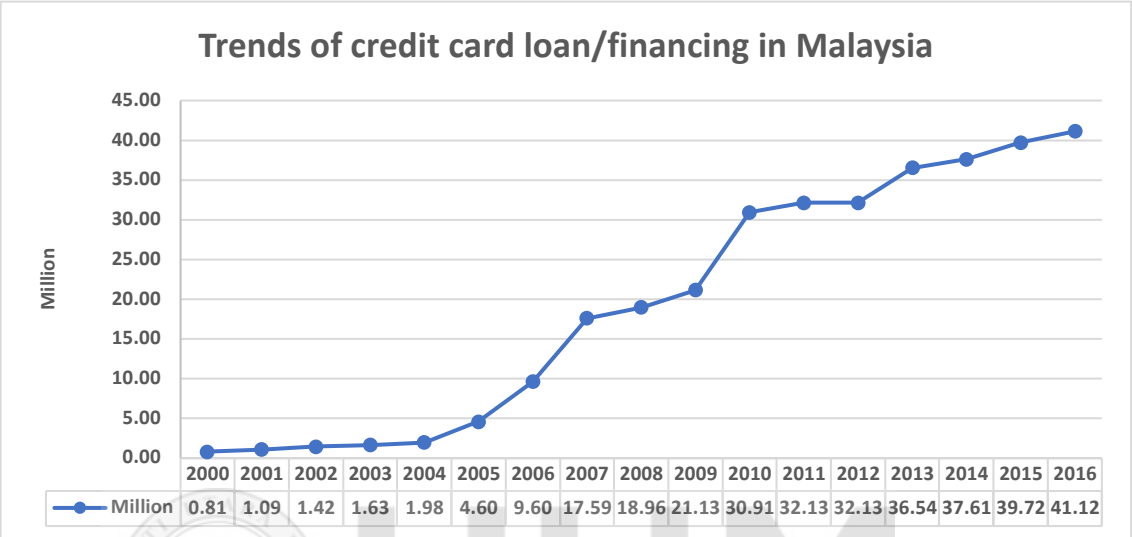
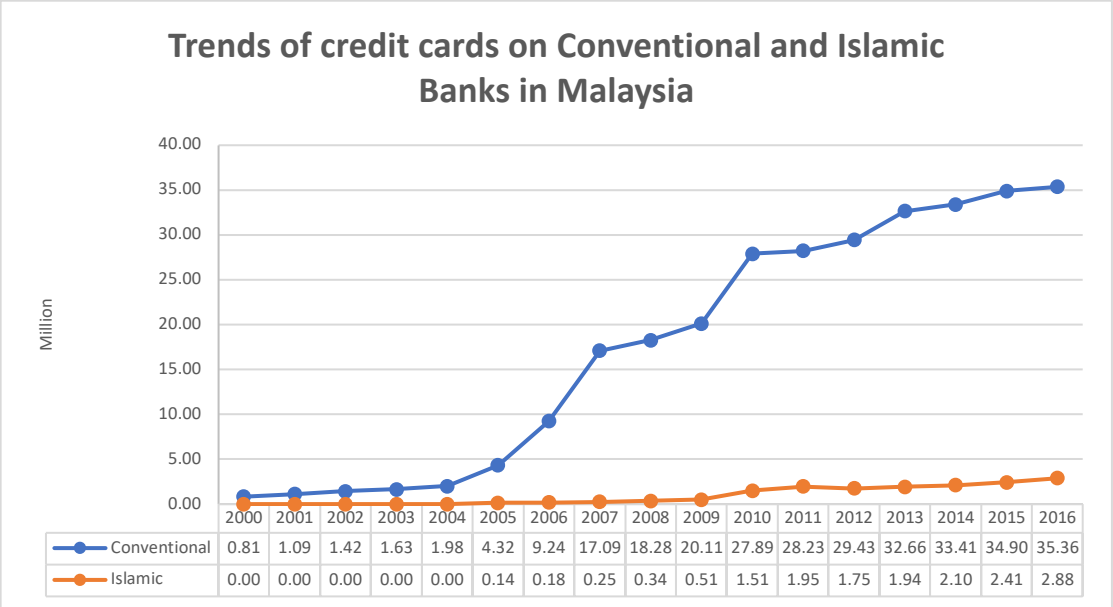


Figure 4.1
Trends of credit card loan/financing in Malaysia
Sources: Financial Reports for Malaysian banks.

Figure 4.1 shows the trends of credit card loan/financing for Malaysian banks. For the period of 2000-2005, the growth of credit card loan/financing is low and this was due to the strategy of banks in offering credit card facility for higher income group of customers. However, the trend of credit card financing increased in year 2006 onwards. It is reported that the demand of credit card loan/financing increased from 9.60 million in year 2006 to 41.12 million in year 2016.

4.3.7 Trends of credit cards on Conventional and Islamic Banks in Malaysia



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Conventional	0.81	1.09	1.42	1.63	1.98	4.32	9.24	17.09	18.28	20.11	27.89	28.23	29.43	32.66	33.41	34.90	35.36
Islamic	0.00	0.00	0.00	0.00	0.00	0.14	0.18	0.25	0.34	0.51	1.51	1.95	1.75	1.94	2.10	2.41	2.88

Figure 4.2
***Trends of credit cards on Conventional and Islamic Banks in* Malaysia**
Sources: Financial Report for Conventional and Islamic banks in Malaysia.

Figure 4.2 shows the trends of credit card loan/financing for both conventional and Islamic banks. The blue bar represents the conventional bank while orange line represents Islamic bank. Islamic banks also compete with conventional banks in introducing variety of credit cards to their customer. Islamic banks show consistent growth similar with conventional banks for the period of study. However, conventional credit cards remain the higher in term of value compared to Islamic credit cards.

4.3.8 Trends of Return Performances for Malaysian Banks

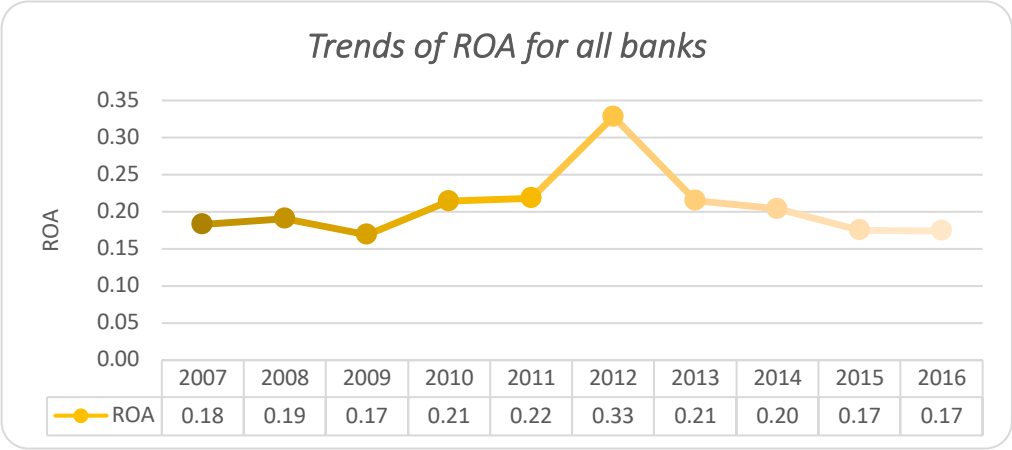
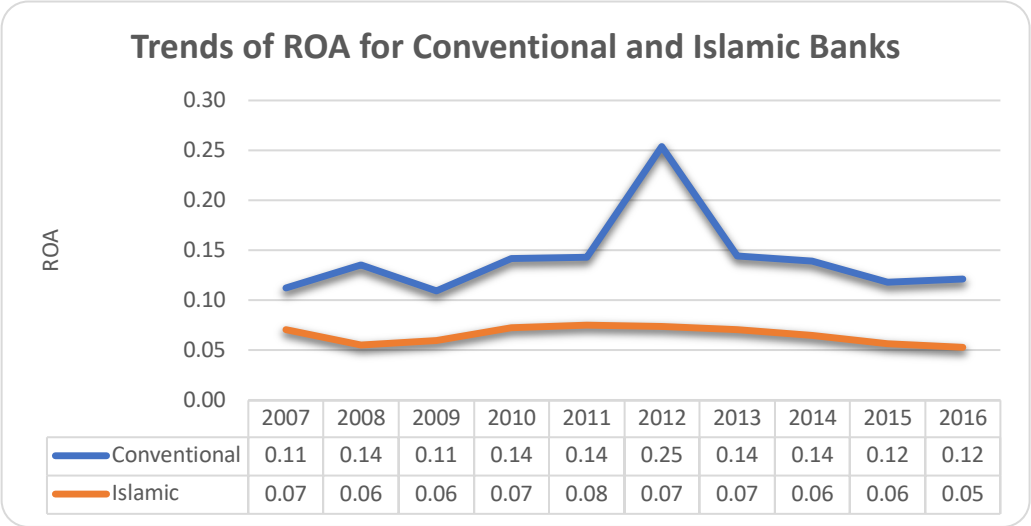


Figure 4.3
Trends of ROA for all banks.
Sources: Financial Reports of Malaysian Banks.

ROA refers to a return performance and it represents assets used by the banks in generating profit. Figure 4.3 shows ROA for both conventional and Islamic bank from 2007 until 2016. The highest ROA was recorded in 2012 while lowest on 2009.

The US financial crisis in 2008 might have impact on Malaysian banks because during the crisis Malaysia banks have tighten their loan to customer. This then reflects their return performances and this is might be a reason of slight decrease in the ROA from 2008-2009. However the credit card loan/financing show the increased trends in year 2010 to 2012 before it decreased for the subsequent years.

4.3.9 Trends of Return Performances for Conventional and Islamic Banks



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Conventional	0.11	0.14	0.11	0.14	0.14	0.25	0.14	0.14	0.12	0.12
Islamic	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.06	0.06	0.05

Figure 4.4
Trends of ROA for Conventional and Islamic Banks
Sources: Financial Report for all banks in Malaysia.

The trends for conventional bank ROA are higher than Islamic bank ROA. Conventional bank ROA was fluctuated during the study period while Islamic ROA looks stable even they are lower than the conventional. The highest ROA for conventional banks was at 2012 with a ratio of 0.25 while the lowest was 0.11. The highest ROA for Islamic banks was 0.08 in 2011 and the lowest ratio was 0.05.

The introduction of new product of Islamic finance industries maintaining the return for the bank which enlarge the economy development industry. However, according to the annual report the limitation of credit cards that was introduced by BNM with only 2 credit cards for a person had decrease the demand for credit card loan by bank in 2013. But there is slightly increase from 2015 to 2016 with 0.03 for conventional ROA. While Islamic ROA show decrease trend from 2013 with 0.07 to 0.05 in 2016.

4.3.10 Trends of Net Interest Margin for Malaysian Banks

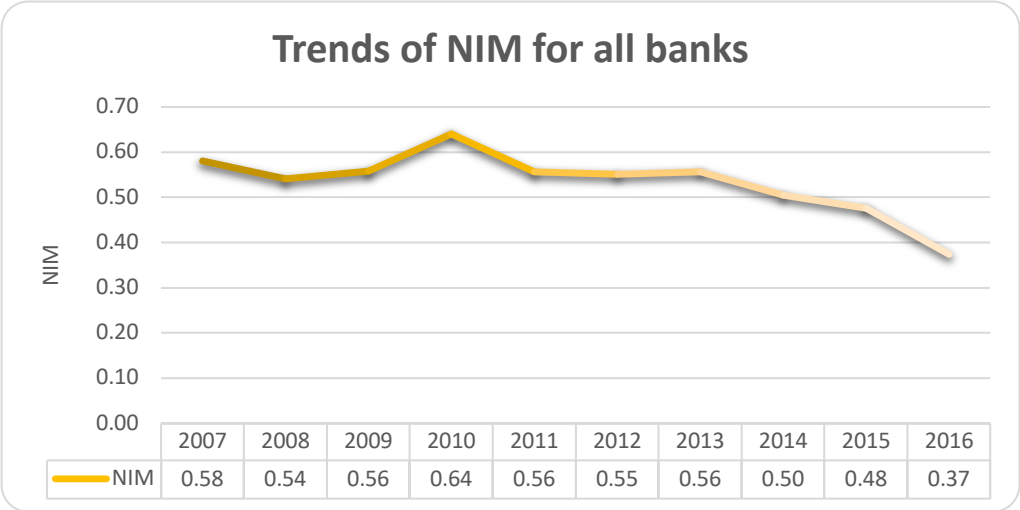
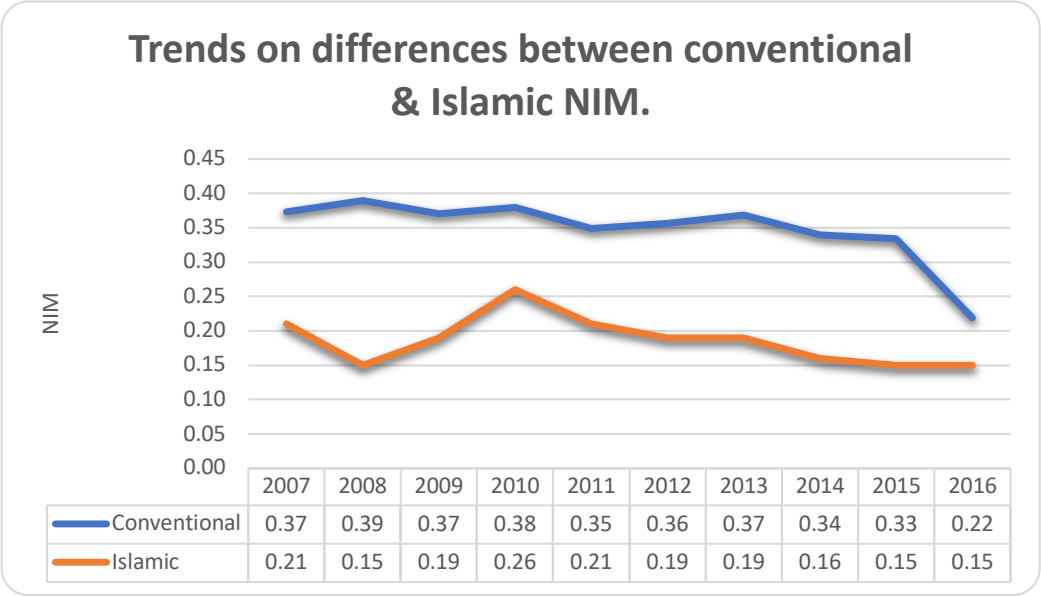


Figure 4.5
Trends of NIM for all banks.
Sources: Financial Report for all banks in Malaysia.

Net interest margin is a ratio measurement for the bank that making profit in loan/financing and deposits. Figure 4.5 shows NIM for all banks and the highest NIM was recorded at 2010 with ratio of 0.64 while the lowest was in 2016 with 0.37. Banks with good NIM performances tend to attract more customer to invest in their banks and also give them high expectation to earn income.

However from 2011 to 2013 the graph shows positive movement because of the grew of Malaysian economy which will affect the investment of the bank and automatically will reflect the income of the bank and increase the rate of interest.

4.3.11 Trends on NIM for conventional and Islamic bank.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Conventional	0.37	0.39	0.37	0.38	0.35	0.36	0.37	0.34	0.33	0.22
Islamic	0.21	0.15	0.19	0.26	0.21	0.19	0.19	0.16	0.15	0.15

Figure 4.6
Trends on differences between conventional & Islamic NIM.
Sources: Financial Report for conventional and Islamic banks in Malaysia.

Figure 4.6 highlights the trends of NIM for conventional banks and NPM for Islamic banks where the blue bar represents Islamic bank NPM while the orange bar represents the conventional bank NIM. The nature of Islamic finance which is prohibiting interest and from this basis Islamic banks use net profit margin (NPM) as their benchmark in measuring bank return (Aladin and Maudos, 2011). NIM for conventional banks seems to show up and down trend where the highest NIM was recorded in year 2008 with NIM value of 0.39. Compare to NPM, the highest NPM was recorded in year 2010 with NIM value of 0.26.

4.3.12 Trends on Credit cards over total loan ratio

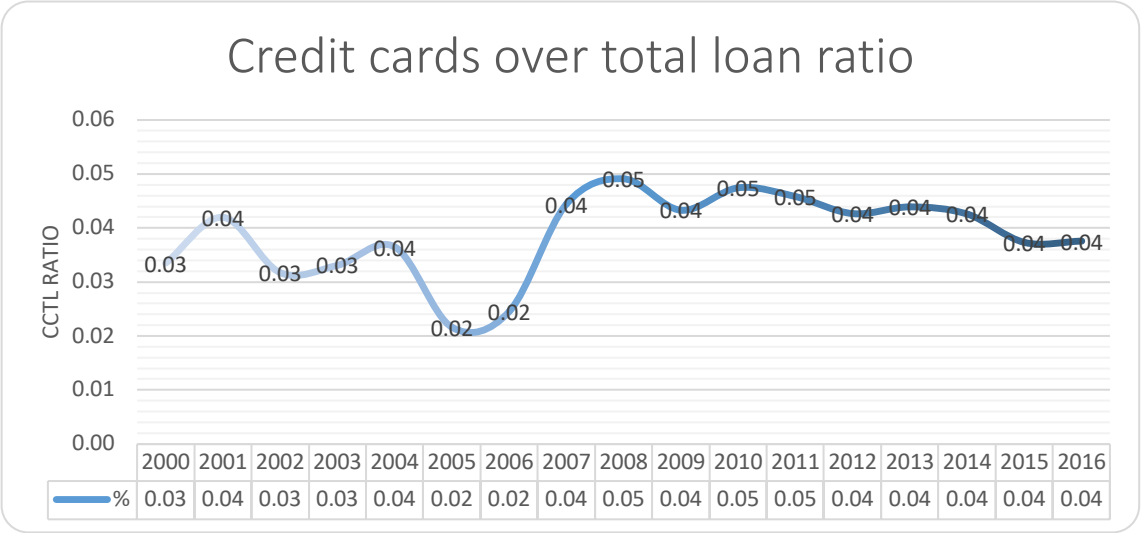


Figure 4.7
Credit cards over total loan ratio.
Sources: Financial Report for all banks in Malaysia.

The above ratio is calculated to determine the amount of credit card loan/financing compare to other loans. Figure 4.7 shows credit cards become an important loan to the bank and the amount keep increasing for the last 16 years. Even there is a slight decrease in the trends from 2015 to 2016 but the ratio is considered high compare to the previous 10 years.

Credit cards considered as short-term financing that being important business line for the bank and parent firms (Higgins and Mason, 2004). In 2008, credit cards become the highest given loan compared to other years in the last 16 years with amount of 0.05 (5%) compared to other total loan for both conventional and Islamic bank that offered credit cards.

4.4 Regression Results

This section reports on the regression results based on the models mentioned in the previous chapter. The first model is regressed based on ROA while the second model is based on NIM where the results are reported in Table 4.3 and Table 4.4

Table 4.3
Regression results for ROA.

	ROA		
	All	CB	IB
Cons	-0.0329	-0.0079	-0.0539
	(0.306)	(0.668)	(0.575)
Bank Specific			
Cctl	0.0338	0.0295	0.0006
	(0.006) ***	(0.0000) ***	(0.153)
Laglas	0.0016	0.0003	0.0005
	(0.358)	(0.795)	(0.941)
Tloanta	0.0160	0.0296	-0.0269
	(0.000) ***	(0.000) ***	(0.435)
Texpti	0.0018	-0.0015	0.0567
	(0.149)	(0.762)	(0.375)
Macroeconomic			
Gdp	0.0006	0.0005	0.0006
	(0.011) **	(0.076) *	(0.487)
cpi	-0.0006	0.0001	-0.0010
	(0.344)	(0.403)	(0.295)
Obs	211	147	64
R squared	0.3185	0.8303	0.0004
Prob F	0.0000	0.0000	0.0000
Hausman	RE (0.8618)	RE (0.6551)	FE (0.3125)
Heteroskedasticity	0.0000	0.0000	0.0000
Autocorrelation	0.0001	0.1280	0.1864

All: all banks, CB: conventional bank, IB: Islamic bank, cctl: Credit card/total loan, laglas: lagged log total asset, tloanta: total loan/total assets, texpti: total expenses/total income, gdp: gross domestic product, cpi: consumer price index,. P values are in parentheses
***p<0.01, **p<0.05, *p<0.1

Table 4.3 reports on the impact of credit card financing and other variables on return on assets for 18 Malaysian banks (12 conventional banks and 6 Islamic banks). The regression are divided into three models; a) Model A for all sample banks (both conventional and Islamic banks) which involves 211 observation, b) Model B for conventional banks which involves 147 observation and c) Model C for Islamic banks

(64 observation). All three models were regressed with Random Effect Model (REM) and Fixed Effect Model (FEM) and Hausman tests have been conducted to identify the best fit models. Therefore, the results report based on the Hausman test results with robust standard errors with the assumption of the presence of heteroscedasticity and autocorrelation problems in our models.

From the results, it is found that only two bank specific variables are significant in Model A; credit cards and total loan variables. Credit card loan/financing is significant at 1% level of confident with the coefficient value of 0.0338. The positive sign indicates that 1 unit change in credit card financing will reflect the 0.0338 changes in the ROA. As for TLOANTA, there is significant and positive association with the ROA with the value of coefficient equals to 0.0160. This indicates that a one unit increase in TLOANTA leads to a 0.0160 unit increase in the ROA. With the significant relationship between TLOANTA and ROA, the bank needs to monitor their level of financing due to its significant contribution to the bank return performances. This positive relationship between credit card loan/financing and total loan on bank return performance is also supported by Stadig (2017) where he found positive and significant effects of loan on the bank profitability. As for the macroeconomic variables, Gross Domestic Products (GDP) shows positive and significant relationship with ROA with coefficient equals to 0.0006. This indicates that a one unit increase in the GDP variable will lead to a 0.0006 unit increase in ROA.

Interestingly, the conventional bank regression in Model B also shows that the same variables have significant relationship with ROA. It can be seen that credit card loans have positive relationship with ROA with coefficient value of 0.0295. Every one

unit increase in CCTL leads to 0.0295 increase in bank ROA. The other significant variable is total loan over total assets (TLOANTA) where 1% changes of TLOANTA will reflect 0.0296% changes in ROA. This then followed by the GDP, which report significant and positive relationship with bank ROA with coefficient value of 0.0005.

Table 4.4
Regression results for NIM.

	NIM		
	All	CB	IB
Cons	-0.0340423	-0.0079221	9.814259
	(0.261)	(0.382)	0.506
Bank Specific			
cctl	0.0387	20.0373	0.0387
	(0.001) ***	(0.155)	(0.001) ***
laglas	0.0016	-1.1937	-0.338607
	(0.325)	(0.0001) ***	(0.734)
tloanta	0.0159	-0.5689	-5.218672
	(0.0000) ***	(0.0004) **	(0.318)
texpti	0.0020	-0.6762	0.9281
	(0.099) *	(0.649)	(0.092) *
Macroeconomic			
gdp	0.0006	0.0372	0.3441
	(0.007) **	(0.328)	(0.081) *
Cpi	-0.0006	-0.0028	-0.5504
	(0.299)	(0.961)	(0.063) *
Obs	201	146	54
R squared	0.3424	0.1303	0.1746
Prob F	0.0000	0.0000	0.0000
Hausman	RE (0.9004)	FE (0.1303)	FE (0.1746)
Heteroskedasticity	0.0000	0.0000	0.0000
Autocorrelation	0.0002	0.0000	0.2496

All: all banks, CB: conventional bank, IB: Islamic bank, cctl: Credit card/total loan, laglas: lagged log total asset, tloanta: total loan/total assets, texpti: total expenses/total income, gdp: gross domestic product, cpi: consumer price index,. P values are in parentheses
***p<0.01, **p<0.05, *p<0.1

Table 4.4 presents the regression results of several models of credit card loan/financing and other variables on the net interest margin (NIM). According Van Hoose (2010), NIM considered more accurate and useful in measuring the profitability for the bank performance because it represent the large portion of the banks revenues and their finance costs. In general, the results show that credit cards over total loan (CCTL), total

loan over total assets (TLOANTA), total expense over total income (TEXPTI), and gross domestic products (GDP) are significant in influencing bank NIM.

The result of CCTL is significant at 1% level of confidence with coefficient of 0.0387. The positive sign indicates that one unit increase of CCTL will lead to 0.0387 increase of NIM. The second bank specific variable that has significant relationship is total loan over total assets (TLOANTA). This variable has positive relationship with NIM with coefficient of 0.0159 in all banks model. This indicates that one unit increase in TLOANTA will lead to 0.0159 increase in bank NIM. The results supported by the empirical studied by Halili (2014) and Hassan and Bashir (2003) that found positive and significant relationship between loan and NIM. In addition, total expenses over total income (TEXPI) reports significant relationship with bank NIM for Model A with coefficient value of 0.0020. The positive sign indicates that one unit increase in TEXPI is associated with 0.0020 increase in NIM. As for macroeconomic variable, the relationship between GDP and bank NIM is positive and significant at 1% level of confidence with coefficient value of 0.0006 where 1 unit increase of GDP will leads to 0.0006 increase in bank NIM.

For conventional bank model as reported in Model B, the results show that two variables which are lag log of total assets (LAGLAS) and TLOANTA are significant with bank NIM.

LAGLAS shows significant relationship with bank NIM with coefficient value of -1.1937 and this negative sign indicates that ne unit increase in LAGLAS leads to 1.1937 decrease in bank NIM. Moreover, TLOANTA also show significant

relationship with bank NIM but the sign of coefficient is negative. It is reported that TLOANTA produces -0.5689 coefficient value which indicates that one unit increase in TLOANTA leads to 0.5689 decrease in bank NIM.

In contrast with conventional banks, Islamic banks show different results where credit card financing variable has significant relationship with bank NIM. with 0.0387 coefficient value. The result shows that one unit increase in CCTL leads to 0.0387 increase in Islamic banks NPM. In addition, TEXPTI also show significant relationship with Islamic bank NIM. The positive sign of coefficient (0.9281) show that one unit increase in TEXPTI leads to 0.9281 increase in Islamic bank NPM. As for macroeconomic variables, it is found that GDP and CPI have significant relationship with Islamic banks NPM where positive coefficient (0.3441) is reported in GDP relationship while negative relationship is reported in CPI with coefficient value of -0.5504.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This study investigates the impact of credit card loan/financing and other control variables on the return performances of Malaysian conventional banks and Islamic banks for the period of 2000 to 2016. The panel regressions of REM and FEM models were conducted in order to investigate the impact of credit card loan/financing on two bank return measures; ROA and NIM.

5.1 Summary of Findings

The first objective of the study is to analyze the trends of credit card financing for conventional bank and Islamic bank in Malaysia. Based on the results in Chapter Four, the credit card loan/financing seems to have an increase trends especially from year 2006 onwards. Even though, conventional banks are found to dominate credit card market but Islamic banks are capable to compete with conventional bank with their Islamic credit cards.

The second objective is to investigate the impact of credit card financing on the bank returns performance. The results show that credit card loan/financing have significant and positive impact on banks ROA. For other variables, it is found that TLOANTA and GDP seem to have significant relationship with bank ROA.

Meanwhile, for the NIM variables the following variables: CCTL, TLOANTA, TEXPTI, and GDP are significantly influence banks NIM.

For the third objective, this study investigates the differences of credit card loan/financing impacts on return performances of conventional banks and Islamic banks. The results show that credit card of conventional banks have significant impacts on banks ROA and NIM. Similar result is also reported on Islamic banks credit card where significant relationship is found between them and Islamic bank performances.

5.2 Implication of Findings

The findings of this study have several implications not only in theoretical but also in practical point of view.

5.2.1 Theoretical Implication

This study provides some empirical supports to the theoretical studies on the relationship between credit card loan/financing and bank return performances. In general, previous studies show that bank loans have positive relationship with bank profitability. They support this view by proposing that the higher the bank loans the higher could be the bank returns. But there are not many studies focus on the impact of specific type of loan such as credit card loans on bank return performances. This study contributes to the existing banking literature on bank performance by including credit card loan as the focus variable. On top of that this study also investigates the impact of Islamic credit cards which are unique for Islamic banks. The results for both conventional banks and Islamic banks show that the relationship between credit card loan/financing is positively related with bank returns.

5.2.2 Practical Implication

Credit card loan/financing is popular among the banking institutions due it nature that offer high return compare to the other type of loans. With the higher loan/financing rate, it is expected to contribute to the better return performance of banks ROA and NIM. With the positive relationship between credit card loan/financing and bank returns, the results propose that banks can rely on credit card loan/financing to increase their returns. Bank management should give attention to credit card facility by providing better services and greater benefits to the credit card customers. In addition, Islamic banks should use this opportunities to expand their market because their market share for credit cards is smaller compare to conventional banks. With a maximum of 18% loan/financing rate for credit card, Islamic banks should grab this opportunity to offer more benefits and attractive package to new credit card holders

At the same time, credit card also faced several issues such as bankruptcy since there is many problem related to the debt from the holders and this problem need to be monitored by the BNM. Furthermore, in implementing new law and regulation regarding bank return performance, BNM should take into consideration factor in credit card loan/financing as this financing facility contributes to the better profitability performance of banks..

5.3 Limitation of Study

Limitations for this study are highlighted as follows:

1) There are not many researches that focus on credit card loan/financing and bank performances. Previous researches mostly concentrate on total loan/financing

as their variable in investigating loan impact on bank performances. Therefore argument and discussion on impact of credit card and bank performance is very limited.

2) Not all banks offer credit card loan/financing facility to their customer and this contributes to the lower data frequency. As a result, the data for credit card loan/financing is limited and with this limitation, this study investigates the impact of credit card loan/financing on bank performances. This is more obvious for Islamic banks where their market share is smaller compare to conventional banks. Therefore Islamic banks data especially on credit card financing is also small.

5.4 Recommendation for Future Research

The following recommendations are proposed:

- The study of bank performances is not limited on bank returns but it also can be expanded to bank risks. It is interesting to have study that assesses the impact of credit card loan/financing on both bank return and risk.

- Panel data is not limited to REM and FEM but it also has more advance techniques such as GMM and many others. Future research may use this advance technique to analyze the impact of credit card loan/financing on bank performances which makes the finding is more meaningful.

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APPENDICES

Regression (RE) ROA for all banks.

Random-effects GLS regression — Number of obs = 211
Group variable: code — Number of groups = 18

R-sq: within = 0.3614 — Obs per group: min = 7
between = 0.1327 — avg = 11.7
overall = 0.3185 — max = 18

Wald chi2(6) = 107.09
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	.0016302	.0009631	1.69	0.091	-.0002575	.0035178
tloanta	.0159814	.0015798	10.12	0.000	.012885	.0190779
texpti	.0017931	.0011846	1.51	0.130	-.0005287	.0041148
cctl	.0337683	.017462	1.93	0.053	-.0004567	.0679932
gdp	.0005895	.0004331	1.36	0.173	-.0002593	.0014384
cpi	-.0005521	.0005376	-1.03	0.304	-.0016058	.0005016
_cons	-.0328927	.0180865	-1.82	0.069	-.0683417	.0025563
sigma_u	.00357967					
sigma_e	.00871159					
rho	.14445564	(fraction of variance due to u_i)				

Regression (FE) ROA for all banks.

Fixed-effects (within) regression — Number of obs = 211
Group variable: code — Number of groups = 18

R-sq: within = 0.3625 — Obs per group: min = 7
between = 0.1059 — avg = 11.7
overall = 0.3034 — max = 18

F(6,187) = 17.72
corr(u_i, Xb) = -0.1724 — Prob > F = 0.0000

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	.0012422	.001419	0.88	0.383	-.0015572	.0040415
tloanta	.0162625	.0016615	9.79	0.000	.0129847	.0195402
texpti	.002104	.0013006	1.62	0.107	-.0004618	.0046698
cctl	.0568082	.0591398	0.96	0.338	-.0598587	.1734751
gdp	.000585	.0004344	1.35	0.180	-.0002719	.001442
cpi	-.0005371	.0005385	-1.00	0.320	-.0015995	.0005253
_cons	-.0272039	.0263434	-1.03	0.303	-.0791724	.0247646
sigma_u	.00485026					
sigma_e	.00871159					
rho	.23663015	(fraction of variance due to u_i)				

F test that all u_i=0: F(17, 187) = 2.96 — Prob > F = 0.0002

Regression (RE) ROA for conventional banks.

```
Random-effects GLS regression                   Number of obs      =       147
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.8575                         Obs per group: min =         7
       between = 0.5043                                        avg =      12.2
       overall = 0.8303                                        max =        18

                                                Wald chi2(6)       =    759.21
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	.0002507	.0004804	0.52	0.602	-.0006909	.0011922
tloanta	.0177145	.0006702	26.43	0.000	.0164008	.0190281
texpti	-.0014592	.0029835	-0.49	0.625	-.0073068	.0043884
cctl	.0295377	.008556	3.45	0.001	.0127683	.0463071
gdp	.0004598	.0002004	2.29	0.022	.0000671	.0008526
cpi	.000177	.0002597	0.68	0.496	-.000332	.000686
_cons	-.0079221	.0090624	-0.87	0.382	-.0256841	.0098398
sigma_u	.00120598					
sigma_e	.00345035					
rho	.10886671	(fraction of variance due to u_i)				

Regression (FE) ROA for conventional banks.

```
Fixed-effects (within) regression               Number of obs      =       147
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.8615                         Obs per group: min =         7
       between = 0.1913                                        avg =      12.2
       overall = 0.7931                                        max =        18

                                                F(6,129)           =    133.70
corr(u_i, Xb)  = -0.1506                        Prob > F           =    0.0000
```

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	-.000849	.0007064	-1.20	0.232	-.0022466	.0005486
tloanta	.0174793	.0006826	25.61	0.000	.0161287	.01883
texpti	-.0033263	.0045112	-0.74	0.462	-.0122519	.0055992
cctl	.0094684	.028691	0.33	0.742	-.0472975	.0662343
gdp	.0004077	.000194	2.10	0.038	.0000238	.0007915
cpi	.0002077	.0002514	0.83	0.410	-.0002897	.0007052
_cons	.0140138	.0132442	1.06	0.292	-.0121901	.0402177
sigma_u	.00298433					
sigma_e	.00345035					
rho	.42795527	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(11, 129) =     3.81                 Prob > F = 0.0001
```

Regression (RE) ROA for Islamic banks.

```
Random-effects GLS regression                   Number of obs      =        64
Group variable: code                            Number of groups   =         6

R-sq:  within  = 0.0749                         Obs per group: min =         7
       between = 0.1866                                        avg =      10.7
       overall = 0.0928                                        max =        12

                                                Wald chi2(6)       =      5.83
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.4428
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	.004261	.0029249	1.46	0.145	-.0014717	.0099937
tloanta	-.0141435	.0097314	-1.45	0.146	-.0332167	.0049298
texpti	-.0000609	.0024464	-0.02	0.980	-.0048557	.0047339
cctl	-.0886381	.1379238	-0.64	0.520	-.3589638	.1816876
gdp	.0009389	.0016051	0.58	0.559	-.0022071	.0040849
cpi	-.0010827	.0017999	-0.60	0.547	-.0046104	.0024451
_cons	-.0538854	.0549766	-0.98	0.327	-.1616375	.0538667
sigma_u	0					
sigma_e	.01321989					
rho	0	(fraction of variance due to u_i)				

Regression (FE) ROA for Islamic banks.

```
Fixed-effects (within) regression               Number of obs      =        64
Group variable: code                            Number of groups   =         6

R-sq:  within  = 0.1869                         Obs per group: min =         7
       between = 0.1123                                        avg =      10.7
       overall = 0.0004                                        max =        12

                                                F(6,52)            =      1.99
corr(u_i, Xb)  = -0.8165                        Prob > F           =    0.0835
```

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	.0004673	.0038036	0.12	0.903	-.0071651	.0080997
tloanta	-.0269644	.0138776	-1.94	0.057	-.0548119	.000883
texpti	.001646	.0024265	0.68	0.501	-.0032232	.0065151
cctl	.5673684	.3697093	1.53	0.131	-.1745075	1.309244
gdp	.0006196	.00146	0.42	0.673	-.0023102	.0035493
cpi	-.0009577	.0016108	-0.59	0.555	-.0041899	.0022745
_cons	.0143785	.0720692	0.20	0.843	-.1302389	.1589958
sigma_u	.01788534					
sigma_e	.01321989					
rho	.64668902	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(5, 52) =     4.33                 Prob > F = 0.0023
```

Regression (RE) NIM for all banks.

```
Random-effects GLS regression                   Number of obs      =       200
Group variable: code                            Number of groups   =        17

R-sq:  within  = 0.1279                         Obs per group: min =         7
       between = 0.2110                                        avg =      11.8
       overall = 0.1354                                        max =        18

                                                Wald chi2(6)       =     26.55
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0002
```

nim	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	-.3556118	.2087781	-1.70	0.089	-.7648094	.0535858
tloanta	-.6205927	.3003158	-2.07	0.039	-1.209201	-.0319846
texpti	.5454462	.2302691	2.37	0.018	.094127	.9967655
cctl	11.71048	4.283759	2.73	0.006	3.314471	20.1065
gdp	.0978585	.0830961	1.18	0.239	-.0650068	.2607239
cpi	-.1723779	.1032478	-1.67	0.095	-.3747399	.0299842
_cons	9.798976	3.910688	2.51	0.012	2.134169	17.46378
sigma_u	1.0034175					
sigma_e	1.607403					
rho	.28041253	(fraction of variance due to u_i)				

Regression (FE) NIM for all banks.

```
Fixed-effects (within) regression               Number of obs      =       201
Group variable: code                            Number of groups   =        17

R-sq:  within  = 0.3646                         Obs per group: min =         7
       between = 0.2329                                        avg =      11.8
       overall = 0.3341                                        max =        18

                                                F(6,178)           =     17.02
corr(u_i, Xb)  = -0.1701                        Prob > F           =    0.0000
```

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	.0013195	.0014715	0.90	0.371	-.0015843	.0042232
tloanta	.0162698	.0016994	9.57	0.000	.0129161	.0196234
texpti	.0021641	.0013324	1.62	0.106	-.0004651	.0047934
cctl	.0558124	.0607008	0.92	0.359	-.0639735	.1755982
gdp	.0006216	.0004556	1.36	0.174	-.0002775	.0015207
cpi	-.0006129	.0005658	-1.08	0.280	-.0017295	.0005037
_cons	-.0291869	.0273488	-1.07	0.287	-.0831565	.0247827
sigma_u	.00386653					
sigma_e	.00889836					
rho	.15882198	(fraction of variance due to u_i)				

F test that all u_i=0: F(16, 178) = 1.97 Prob > F = 0.0174

Regression (RE) NIM for conventional banks.

```
Random-effects GLS regression                   Number of obs      =       146
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.2991                         Obs per group: min =         7
       between = 0.0920                                        avg =      12.2
       overall = 0.1121                                        max =        18

                                                Wald chi2(6)       =     44.28
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

nim	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	-.9661113	.1744306	-5.54	0.000	-1.307989	-.6242336
tloanta	-.4995548	.1806744	-2.76	0.006	-.8536701	-.1454395
texpti	.0373351	1.099046	0.03	0.973	-2.116755	2.191425
cctl	10.44753	4.587022	2.28	0.023	1.457131	19.43793
gdp	.041703	.0519544	0.80	0.422	-.0601256	.1435317
cpi	.0034186	.0672643	0.05	0.959	-.1284171	.1352542
_cons	21.00398	3.306951	6.35	0.000	14.52247	27.48548
sigma_u	1.0685397					
sigma_e	.88409383					
rho	.59362467	(fraction of variance due to u_i)				

Regression (FE) NIM for conventional banks.

```
Fixed-effects (within) regression               Number of obs      =       146
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.3051                         Obs per group: min =         7
       between = 0.1251                                        avg =      12.2
       overall = 0.1303                                        max =        18

                                                F(6,128)           =      9.37
corr(u_i, Xb)  = -0.7099                        Prob > F           =    0.0000
```

nim	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	-1.193748	.1811755	-6.59	0.000	-1.552235	-.8352615
tloanta	-.5689304	.1749851	-3.25	0.001	-.9151683	-.2226925
texpti	-.6761598	1.187212	-0.57	0.570	-3.025261	1.672942
cctl	20.03731	7.351937	2.73	0.007	5.490248	34.58437
gdp	.0372005	.0497592	0.75	0.456	-.0612566	.1356575
cpi	-.002823	.0644271	-0.04	0.965	-.1303031	.1246571
_cons	24.97558	3.404047	7.34	0.000	18.24009	31.71106
sigma_u	1.8608123					
sigma_e	.88409383					
rho	.81583956	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(11, 128) =    21.50                 Prob > F = 0.0000
```

Regression (RE) NIM for Islamic banks.

```
Random-effects GLS regression                   Number of obs      =        54
Group variable: code                            Number of groups   =         5

R-sq:  within  = 0.3166                         Obs per group: min =         7
       between = 0.5781                                        avg =      10.8
       overall = 0.2768                                        max =        12

                                                Wald chi2(6)       =     17.99
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0063
```

nim	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
laglas	.7686858	.5566656	1.38	0.167	-.3223586	1.85973
tloanta	-2.721997	1.733547	-1.57	0.116	-6.119687	.6756933
texpti	.8456549	.4294567	1.97	0.049	.0039353	1.687374
cctl	46.02142	23.92758	1.92	0.054	-.8757679	92.91862
gdp	.4162883	.3113846	1.34	0.181	-.1940144	1.026591
cpi	-.5583386	.3432017	-1.63	0.104	-1.231002	.1143244
_cons	-9.211385	10.27891	-0.90	0.370	-29.35769	10.93492
sigma_u	0					
sigma_e	2.2525692					
rho	0	(fraction of variance due to u_i)				

Regression (FE) NIM for Islamic banks.

```
Fixed-effects (within) regression               Number of obs      =        54
Group variable: code                            Number of groups   =         5

R-sq:  within  = 0.4432                         Obs per group: min =         7
       between = 0.5499                                        avg =      10.8
       overall = 0.1746                                        max =        12

                                                F(6,43)            =      5.71
corr(u_i, Xb)  = -0.9190                        Prob > F           =    0.0002
```

nim	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
laglas	-.338607	.6779778	-0.50	0.620	-1.70588	1.028666
tloanta	-5.218672	2.421662	-2.15	0.037	-10.10242	-.3349259
texpti	.9281082	.4350518	2.13	0.039	.0507428	1.805474
cctl	222.6028	67.99275	3.27	0.002	85.48239	359.7233
gdp	.3441804	.2860952	1.20	0.236	-.2327855	.9211463
cpi	-.5503805	.3098391	-1.78	0.083	-1.175231	.0744695
_cons	9.814259	12.95061	0.76	0.453	-16.30314	35.93166
sigma_u	4.9659733					
sigma_e	2.2525692					
rho	.82935682	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(4, 43) =     4.20                 Prob > F = 0.0059
```